

OPTICS ARRANGEMENTS INCLUDING LIGHT SOURCE ARRANGEMENTS FOR AN ACTIVE MATRIX
LIQUID CRYSTAL IMAGE GENERATOR

ABSTRACT OF DISCLOSURE

A system for producing modulated light is disclosed. The system comprises a spatial light modulator including a light modulating medium switchable between different states so as to act on light in ways which form overall patterns of modulated light. The system also includes an arrangement for switching the modulating medium between the different states in a controlled way and an illumination arrangement for producing a source of light. The system further includes an optics arrangement for directing light from the source of light into the spatial light modulator and for directing light from the spatial light modulator through a predetermined source imaging area. The optics arrangement cooperates with the illumination arrangement and the spatial light modulator so as to produce a real image of the source of light within the source imaging area such that an individual is able to view a virtual image of the overall patterns of modulated light from the source imaging area. A variety of novel optics arrangements are disclosed including specific combinations of different light sources, diffusing plates, polarizers, beam splitters, analyzers, lenses, mirrors, and holographic optical elements which allow the overall optical arrangement to be miniaturized to the same degree and in coordination with the spatial light modulator. The different light sources include using a plurality of light sources, such as LEDs, to form an array of light sources, each of the light sources providing light to a corresponding portion of the spatial light modulator.